

File Sharing System

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Abstract - We know that what is cost of storing the data on servers and again retrieving the same data. It is only suitable for paid users. Through our project we are going to reduce cost of this data storage and retrieval process and it will be beneficial for normal users. In our survey we found that such web sites are available but they are not feasible and affordable for normal users. So we picked up this huge drawback and we are trying to design an application for the same. Our system is based of secure retrieval of stored data along with safety and reliability. The most important attribute with our system is the need of key for receiving data for each user and thus increase the security levels.

Index Terms- Secure data transfer component, Key generation.

I. INTRODUCTION

The use of the terms uploading and downloading often imply that the data sent or received is to be stored permanently, or at least stored more than temporarily. In contrast, the term downloading is distinguished from the related concept of streaming, which indicates the receiving of data that is used near immediately as it is received, while the transmission is still in progress and which may not be stored long-term, whereas in a process described using the term downloading, this would imply that the data is only usable when it has been received in its entirety. Increasingly, websites that offer streaming media or media displayed in-browser, such as YouTube, and which place restrictions on the ability of users to save these materials to their computers after they have been received, say that downloading is not permitted. In this context, download implies specifically "receive and save" instead of simply "receive".[1] However, it is also important to note that downloading is not the same as "transferring" (i.e., sending/receiving data between two storage devices would be a transferal of data, but receiving data from the Internet would be considered a download.

Uploading" and "downloading" are terms used to refer to types of electronic data transfers. The difference between them is the direction in which the files are being transferred. Files are considered to be uploaded when they are transferred from a computer or other electronic device to a central server, and downloading is when the files are transferred from a server to a smaller peripheral unit, such as a computer, smart phone or other device. [2] These two different types of transfers are often done via the Internet, such as when a file is downloaded from a website. The transfer of data from one system or device to a similar system or device, such as from a desktop, computer to usually is not considered uploading or downloading.

II. RELATED WORK

Currently the system used for storing and again retrieving the data is very costly and used at a large scale. No matters, the systems provide many operations along with data storage but they are paid system. So because of this major disadvantage of the currently available systems, it is used by the premium users only i.e. paid users.

In the current scenario for such systems it is necessary that you must provide your credit card number, as it is paid service. Some systems also provide the facility of free data storage and retrieval but it is for limited number of days only. Currently system does not provide any authentication criteria for retrieving the data. There are many such problems with the existing system. The main drawbacks of existing system are:

- Expensive: Only paid users are allowed to send the data also user has to submit the Credit card number to pay for respective services.
- Less secured: Current systems do not provide any full-proof mechanism for authentication of the user.
- Unreliable: As no full-proof mechanism for user authentication is supported by currently used systems, therefore it is not reliable to make use of such services or software's.

| | RapidShare | 4Shared | Mediafire | F-Secure |
|-------------------|------------|---------|-----------|-----------|
| SMS Verification | No | No | No | Yes |
| Key Generation | No | No | No | Yes |
| Traffic/Bandwidth | Limited | Limited | Limited | Unlimited |

III. PROJECT SCOPE

On domestic level where students are concerned it could be used as software where in it is possible to transfer power point presentation, assignments, programs, video clips could be sent within few of minutes. On industrial level where data privacy/security is a major concern, our software provides efficient security and adding it up with unlimited data transfer.

3.1 User Classes and Characteristics:

This software applies to any user of any computer system. There is no limitation on who would be able to or allowed to use F-Secure, as F-Secure is an application that could be used by user of a computer system who would like to manage as well as Upload and Download data i.e. files on network. On domestic level this application is useful in Schools, Colleges,

Universities where Students can make use of this software to get required data (assignments, practical's etc). On industrial level many companies can use this software to transfer their highly sensitive data in other companies. [3]

- Administrator: They are one of the core users and are able to authenticate the client who is going to upload and download data.

- Characteristics: Administrator must have knowledge of working of file sharing systems and he/she should be able to solve the problems that come across during the file transfer process.

- End User: The end users are expected to be Internet literate because they are the people who are going to get the key and verification message.

- Characteristics: No technical experience is required basic knowledge of handling system is sufficient.

3.1.1 Operating Environment

As far as operating systems are concerned F-Secure is compatible with:

-All 64-bit versions of Microsoft Windows

-All 32-bit Microsoft Windows (95/98/NT/2000/XP/Vista)

-All POSIX (all versions of Linux/all versions of BSD/all UNIX-like operating systems)

Moreover, F-Secure is produce with the help of open source both front end and back end that is compatible with almost any operating system. It is obvious that F-Secure is independent from the operating system of the computer system on which it runs. This software is web-based and can be viewed by any web browser, i.e. Mozilla, Internet Explorer, Netscape Navigator, and Opera.

3.1.2 Design and Implementation Constraint

Main server should always be on. Every client system should have web browsers like Google Chrome, Mozilla Firefox, Internet Explorer, Netscape Navigator, and Opera or web browsers which are compatible to above mentioned browsers. Every system should also have flash player installed in it. Anyone who wishes to work on further development of F-Secure should have the knowledge of following programming languages: • HTML (Front) •Java Script (Front) •PHP (Back).

3.1.3 Assumptions and Dependencies

Every user should provide the mobile number compulsorily, because the authentication code will be sent to the same mobile number. Every new visitor should fill registration form and set the user id and password. While downloading the data, the user should enter correct file password, authentication key and Captcha code. We assume that extra documentation beyond this report would not be necessary in order for the user to utilize this software.

3.3 External interfaces Requirements

3.3.1 User Interfaces

The first interface is the log-in screen. This is where the user has a specific Username and Password so that they can gain access to the software and data. User can also choose that whether he/she wants to upload or download the data. One of F-Secure's advantages is its user interfaces, as they are extremely functional, easy to use and can be handled even by users with very little knowledge and experience on using computer systems.

3.3.2 Hardware Interfaces

Though not necessarily interfacing with the hardware, the system must make use with an internet connection. For F-Secure's installation and use, requirements are almost zero. It can run on any computer system, regardless of the type of operating system used. The only thing F-Secure require, as far as hardware is concerned, is a compatible CPU.

3.3.3 Software Interfaces

Along with the internet connection, the system makes indirect use of an internet browser. Outside of the HTML code and PHP, the code doesn't tell any software, including the browser, what to do.

-HTML: It is used to develop various pages and forms.

-PHP: It is used to carry data.

-JavaScript: It is used to perform logical calculations and looping activities.

-CSS: It is used to place the components on pages and forms.

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3.3.4 Communication Interfaces

The system uses an internet connection to connect to the database. The code itself though, does not specifically direct the network controllers to do any work. Connection to the Internet would be considered useful for users, as, through it, they would be able to access the software and information about F-Secure.

-MySQL database: Multiple systems communicate with each other using common database stored on main server and also it is an open source and feely available.

-LAN: for data transmission.

3.4 Non-Functional Requirements:

3.4.1 Performance

For system to perform precisely or affectively bandwidth is the major requirement. Even if minimum requirement is around 256KBPS, system to run smoothly, must be provided bandwidth of around 1MBPS.

3.4.2 Safety

To keep the uploading/downloading data safe, there should not be any voltage fluctuations of computer system. This application does not run in cases of wrong pass word/key insertion or wrong settings. In case of error it provides an alert message to users with appropriate help messages.

3.4.3 Security

System generated key i.e. private key must be kept hidden from any other person except the One on receiving end. Access to the database should be restricted to people who are not valid/authenticated users. Passwords and ID's should be regulated to be at least a certain length and also contain - alphanumeric characters in both the password and key generation.

3.5 Other Requirements

3.5.1 DB requirements:-

MySQL is a relational database management system which is an open source database. (RDBMS) that runs as a server providing multi-user access to a number of databases. Many web applications use MySQL as the database component of a LAMP software stack. Its popularity for use with web applications is closely tied to the popularity of PHP, which is often combined with MySQL. Several high-traffic web sites (including Flickr, Facebook, Wikipedia, Google (though not for searches), Nokia and YouTube) use MySQL for data storage and logging of user data. MySQL is one of the top databases available in the market. MySQL is a relational database with many advanced features and options. Over time, MySQL has proved itself to be a fast, reliable and cost effective competitor to the other more expensive databases like MS SQL Server and Oracle. Here are a few of the advantages of using MySQL in database development. MySQL is easily installable and operable on different platforms including Windows, Linux, OS2 and Solaris. Cross platform operability makes it a favorable choice for development companies. MySQL database system also contains APIs for integration with C, C++, PHP, Java, Perl, Python and Ruby etc. You can connect it easily with different development platforms so you can actually integrate applications developed in different OS and development platforms. MySQL as a relational database is secure as all access passwords are stored in an encrypted format restricting any unauthorized access to the system. It also encrypts the transactions so eavesdroppers and data harvest tools cannot replicate or regenerate the database transactions once they are processed.

Features:

- Because of its unique storage engine architecture MySQL performance is very high.
- Supports large number of embedded applications which makes MySQL very flexible.
- Use of Triggers, Stored procedures and views which allows the developer to give a higher productivity.
- Allows transactions to be rolled back, commit and crash recovery.
- Triggers & cursor.
- Open Source
- Fast Development

- Better for Small Businesses
- Cross Platform Operability
- Security
- Connectivity

IV. SYSTEM ARCHITECTURE

4.1 MVC

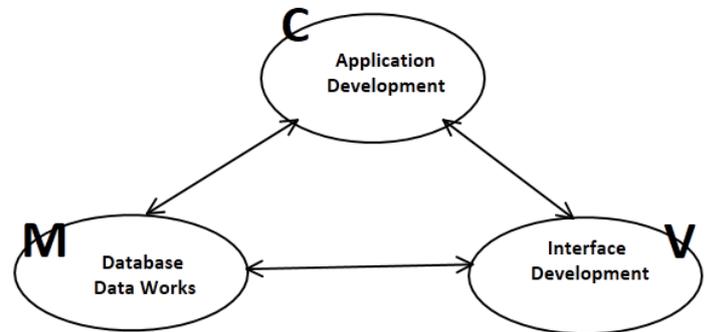


Fig. 4.1: System flow

As you see above if you split your project three part like Application Development, Database and Data processing and Interface development then of course you project will be more understandable and developers can work more efficiently.

- Model: It handles data processing and database works part. Model processes events sent by controller. After processing these events then it sends processed data to controller (thus, controller may reprocess it) or directly to view side.

- View: View prepares an interface to show to the user. Controller or model tells view what to show to the user. Also view handles requests from user and informs controller.

- Controller: Let's say controller is like brain of the system. That is right. Because it processes every request, prepares other parts of the system like model and view. Then the system determines what to do by controller's commands. Even if you are junior developer you probably faced with a problem called "Complexity of Project". There MVC comes. MVC helps you to decrease complexity of project. For instance, there is a team with 5 people. If they are working on same project after sometime project reaches a point which no one can understand what project is going to be. MVC splits project to (by default) three different parts. Like Model, View, Controller.[4]

4.2 CodeIgniter

CodeIgniter is an open source rapid development web application framework, for use in building dynamic web sites with PHP. "Its goal is to enable [developers] to develop projects much faster than...writing code from scratch, by providing a rich set of libraries for commonly needed tasks, as well as a simple interface and logical structure to access these libraries."

CodeIgniter is loosely based on the popular Model-View-Controller development pattern. While view and controller classes are a necessary part of development under CodeIgniter, models are optional.

Features:

- Extremely Light Weight
 - Full Featured database classes with support for several platforms.
 - Form and Data Validation
 - Session Management
 - Email Sending Class. Supports Attachments, HTML/Text email, multiple protocols and more
 - File Uploading Class
- Search-engine Friendly URLs

V. TECHNICAL SPECIFICATION

The technologies which are used to implement the system are:

- 1) HTML is used for webpage creation.
- 2) PHP is used as server side language as it is free and open source.
- 3) Java Script and JQuery for webpage validation and dynamic generation.
- 4) Eclipse PHP is used as a Rapid Application Development Tool (RAD) or as an Integrated Development Environment (IDE) for coding the software.
- 5) MySQL is used as database management system because it is free and open source and also fast.

5.1 Advantage

- Security: Our site provides highest security for file hosting by exact authentication of downloader via SMS verification and key matching.
- Unlimited Bandwidth and traffic: Our site gives unlimited data storage and bandwidth it also handles large traffic of data.
- CAPTCHA Verification: For every download we used CAPTCHA verification so that various attack on site can be prevented.

5.2 Disadvantage

- SMS verification would not work if mobile phone is out of range.
- If downloader lost his mobile phone then it is almost impossible for him to get the file without phone.

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